CLAIMS

1.　A method of cell search in a wireless communication systems having a plurality of base stations and a mobile station, each of the plurality of base stations serving a separate cell within a service area and transmitting a common primary synchronisation code (PSC) in a primary synchronisation channel within a slot of a radio frame, the method including the steps of;

(a) scanning through radio channels in scanning increments corresponding to a standard channel raster;

(b) estimating the PSC signal-to-Doise ratio of each radio channel;

(c) if a PSC signal-to-noise ratio is above a first predetermined threshold level, completing a cell search procedure including slot synchronisation, frame synchronisation and scrambling code detection steps for that radio channel;

(d) if the cell search procedure is successfully completed for the radio channel in step (c), increasing the scanning increments to the broadcast frequency separation between cells;

(e) when all radio channels are scanned in step (d), sorting the scanned radio channels in descending order by PSC signal-to-noise ratio; and

(f) performing the cell search- procedure on each sorted radio channel in descending order.

2.　A method of cell search according to claim 1, wherein if the cell search procedure defined by steps (a) to (f) is not successful, the method includes the step of:

if more than a predetermined number of sorted radio channels have been searched without detecting cells on any of the searched radio channels, discontinuing the cell search procedure.

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3   A mobile station for use in a wireless communication system including a plurality of base stations, each of the plurality of base stations serving a separate cell within a service area and transmitting a common primary synchronisation code (PSC) in a primary synchronisation channel within a slot of a radio frame, the mobile station including:

scanning means for scanning through possible radio channels;

cell search means for completing a cell search procedure including slot synchronisation means, frame synchronisation means and scrambling code detection means; and

processing means for controlling operation of the mobile station, wherein the scanning means scans through possible radio channels in scanning increments corresponding to a standard channel raster;

the slot synchronisation means estimates the PSC signal-to-noise ratio of each radio channel;

the cell search means acts to complete the cell search procedure for that radio channel, If the processing means determines that the PSC signal-to-noise ratio is above a first predetermined threshold level;

the processing means increasing the scanning increments to the broadcast frequency separation between cells, if the cell search procedure is successfully completed for that radio channel;

the processing means further acting .to sort the scanned radio channels in descending order by PSC signal-to-noise ratio when all radio channels are scanned;

the cell search means performing the cell search procedure on each sorted radio channel in descending order.

4.   A mobile station according to claim 3, wherein, if the cell search procedure is not successful, the processing means acts to:

discontinue the cell search procedure if more than a predetermined number of sorted radio channels have been searched without detecting cells on any of the searched radio channels.

5. A method of cell search in a wireless communication system having a plurality of base stations and a mobile station, each of the plurality of the base stations serving a separate cell within a service area, the method comprising the steps of:

executing the cell search at a first frequency interval by scanning a band; and

executing the cell search at a second frequency interval wider than the first frequency interval.

6. A mobile station for use in a wireless communication system having a plurality of base stations each of which serving a separate cell within a service area, characterized in that the mobile station executes cell search in a first phase by scanning a band a first frequency interval and in a second phase by scanning the band at a second frequency interval wider than the first frequency interval.